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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,724	12/28/2004	Franz Laermer	10191/3980	5180

26646 7590 09/15/2010

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EXAMINER	
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ART UNIT	PAPER NUMBER
1716	
MAIL DATE	DELIVERY MODE
09/15/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Advisory Action Before the Filing of an Appeal Brief	Application No.	Applicant(s)	
	10/519,724	LAERMER, FRANZ	
	Examiner	Art Unit	
	RAKESH DHINGRA	1716	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 03 September 2010 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

a) ☒ The period for reply expires *03* months from the mailing date of the final rejection.

b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. ☐ Applicant's reply has overcome the following rejection(s): _____.

6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: *None*.
   Claim(s) objected to: *None*.
   Claim(s) rejected: *14-31*.
   Claim(s) withdrawn from consideration: *None*.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: see continuation sheet.

12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____

13. ☐ Other: _____.

/R. D./
Examiner, Art Unit 1716

/Karla Moore/
Primary Examiner, Art Unit 1716

Response to applicant's arguments:
Claims 14 to 31 are pending in the present application.
Rejection of Claims 14, 16 to 22, 27, 29, and 30 Under 35 U.S.C.103(a)
Applicant contends that the purported generation of chlorine trifluoride in Walter et al. does not in any way establish or support any contention that chlorine trifluoride would necessarily be generated under the conditions disclosed in Suto et al. Nonetheless, the present rejection is deficient for at least the following additional reasons. Regarding the Examiner's contention at page 8 of the Final Office Action that AAPA "teaches a method and apparatus that discloses benefit of using ClF3 for etching silicon substrates.", the portion of the Specification (pag 1, lines 10 to 20) cited by the Examiner does not disclose any apparatus. Thus, the Examiner's contention that it would have been obvious to modify an alleged apparatus of AAPA in view of the other cited references is untenable.
Examiner responds that teaching of the specification (page 1, line 10-20) regarding known benefit of using ClF3 for etching silicon substrate would inherently use an apparatus to conclude this said teaching. Thus, the contention in the office action regarding modification of an apparatus to obtain improved etching rate is considered tenable.
Applicant also argues that regarding the Examiner's contention at page 9 of the Final Office Action that "it would have been obvious to one of ordinary skills [sic] in the art at the time of the invention to regulate the process parameters like pressure and flow rates of first and second gases as taught by Walter et al. in the apparatus of admitted prior art to obtain enhanced etching rate of substrates.", Walter et al. discloses an apparatus with a single tank holding the gas composed of one or more substances. Col. 2, lines 49 to 55. Thus, any flow control would only apply to the single gas contained in the tank. As such, Walter et al. does not disclose, or even suggest providing first and second gases to a plasma reactor, or regulating flow rates of first and second gases provided to a plasma reactor. Moreover, Walter et al. makes clear that the flow rate is inconsequential except to the extent that it may affect the glow discharge. See col. 3, lines 4 to 6. Further, since Walter et al. teaches only a single gas supply tank, any mention of stochiometric proportions of fluorine and chlorine atoms necessarily refers to the proportion of these atoms present in the single source of reactant gas. Thus, as regards stochiometric ratios, Walter et al. at most teaches providing a stochiometric ratio of atoms in a single supply gas for formulation of chlorine pentafluoride. Furthermore, since Walter et al. discloses chlorine trifluoride as a readily available reactant gas, it is unclear why Walter et al. would lead one of ordinary skill in the art to modify the apparatus of Walter et al. to be stochiometrically optimized to generate chlorine trifluoride.
Examiner responds that the term "a tank" in Walters (col. 2, line 50) could include more than one tank. Further, even if (for the sake of argument) there was one tank containing the mixture of two gases, there would obviously be at least two tanks/source upstream of this said "one tank" to contain the two constituent gases (e.g. fluorine and chlorine). Thus the control would necessarily include control of pressure, flow rate of each of the individual (two) gases, since the reactant gas is continuously supplied to the glow discharge cell. Further, Walters also teach that with the glow discharge ClF5 and other gases including ClF3 could be continuously withdrawn from the apparatus of Walters (Walters – col. 1, lines 40-58). Thus the apparatus of AAPA in view of Walters is considered capable of producing ClF3. Further, one of skill in the art and looking to obtain ClF3 would obviously control flow rates etc of both the constituent gases to obtain stochiometric conversion of the constituent gases to optimize the yield of ClF3, in view of Walters's teaching of controlling stochiometrically proportions of atoms to obtain optimum yield. Additionally, optimizing the gas flows etc to stochiometric proportions to optimize the yield would be obvious to one of skill in the art.
Applicant also argues regarding Suto et al. that it is noted that the gases supplied to the microwave tube are converted largely to radical F and Cl atoms, which then react with either the silicon substrate or chlorine gas introduced by a separate inlet into the process chamber. Since the apparatus of Suto et al. is arranged such that a substantial portion of the atoms interact--after leaving the microwave tube--with either the silicon substrate or the separately introduced chlorine gas, there would be no apparent reason to provide the NF3 and Cl2 gas into the microwave tube in any particular stochiometric ratio.
Further regarding Suto et al., Applicant disagrees with the assertion at page 10 of the Final Office Action that "[s]ince Suto teaches production of interhalogen ClF during the process, few molecules of ClF3 would also be produced during the process, considering the teaching of Walter et al. that ClF3 could be produced under glow discharge conditions." Further to the discussion of inherency set forth above, whether or not chlorine trichloride "could" be produced in the apparatus of Walter does not in any way establish that chlorine trifluoride would necessarily be produced. As further regards claim 19, even if Suto et al. disclosed the formation of some minute amount of chlorine trifluoride--which Suto et al. does not--there would still be no teaching or suggestion of etching a silicone substrate in the process chamber using the hypothetical chlorine trifluoride gas.
Examiner responds that Suto et al is cited regarding its teaching of using high density plasma to produce interhalogen molecules like ClF, using chlorine and fluorine containing gases. Suto et al also teach that interhalogen molecules like FCl are generated during the high density plasma generation in the discharge tube, which are then transported to the process chamber. Though Suto et al do not explicitly teach that the apparatus produces ClF3, but few molecules of ClF3 would be produced in the apparatus of AAPA in view of Walters and Suto et al, considering the teaching of Walters that ClF3 is produced under glow discharge conditions. Further, since Suto et al teach using the generated interhalogen molecules in the process chamber for processing the substrate, it would be obvious to optimize the flow rate etc of the constituent gases for stochiometric proportions, in view of teachings of AAPA in view of Walters and Suto et al to obtain increased etching rate for processing of the substrate.
Regarding applicant's further arguement that there would be no apparent reason to provide the supply gases of Yanagisawa et al. into the microwave generator according to any particular stochiometric ratio, examiner responds that argument regarding supplying gases per stochiometric proportions is already responded above under Walters and Suto et al.
In view of above, and as also explained under claim rejections, AAPA in view of Walters, Suto et al and Yanagisawa teach all limitations of claims 14, 16-22, 27, 29, 30 and the rejection is maintained. Further, in view of above rejection of claims 15, 23-26, 28 is also maintained.